iSound PA20

Dual 20W Audio Amplifier

User Manual V2.0

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1. Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.
This manual is only for operation instruction only, not for any maintenance usage. The functions described in this version are updated till April, 2020. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

2. FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.
Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.
Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

3. SAFETY PRECAUTIONS

- To ensure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.
- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.

- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

4. Product Introduction

The Mini Digital Amplifier is a compact-size digital amplifier (Class-D) with 3 inputs (2 line in and 1 balanced MIC). It is integrated with powerful functions, including bridge connection, dual-mono, EQ control, microphone mixer etc.
It has a good application in different places, including classroom, small meeting room, lecture hall, bar, pub etc.

5. Features

- 2x20Watt@4Ohm as the default amplifier output.
- Bridge connection function. User can switch the Mini Digital Amplifier to be 1x40Watt@8Ohm by bridge connection.
- Two stereo audio inputs, switchable by button, IR remote & RS232.
- Volume/Bass/Treble controllable by buttons IR remote & RS232.
- MIC port can support balance/unbalance signal, suppress the external noise effectively.
- Line audio output at 3.5mm jack, with volume controllable.
- Dual-mono function. User can sum up the stereo audio to two times mono audio.
- MIC mixer function. The microphone will be mixed to the line audio output, and be controlled separately.
- MIC input supports 48V phantom power, dynamic MIC and wireless MIC.
- Auto noise gate. It keeps detecting the audio and MIC input, will mute the output when there is no input.
- Ultra low inrush current, no need for power sequencing. This allows multiple Mini Digital Amplifier to be powered on simultaneously without overloading power circuits.
- Convection cooler, fanless design.

- Antistatic case design: providing good protection for long-term and stable performance.

6. Package List

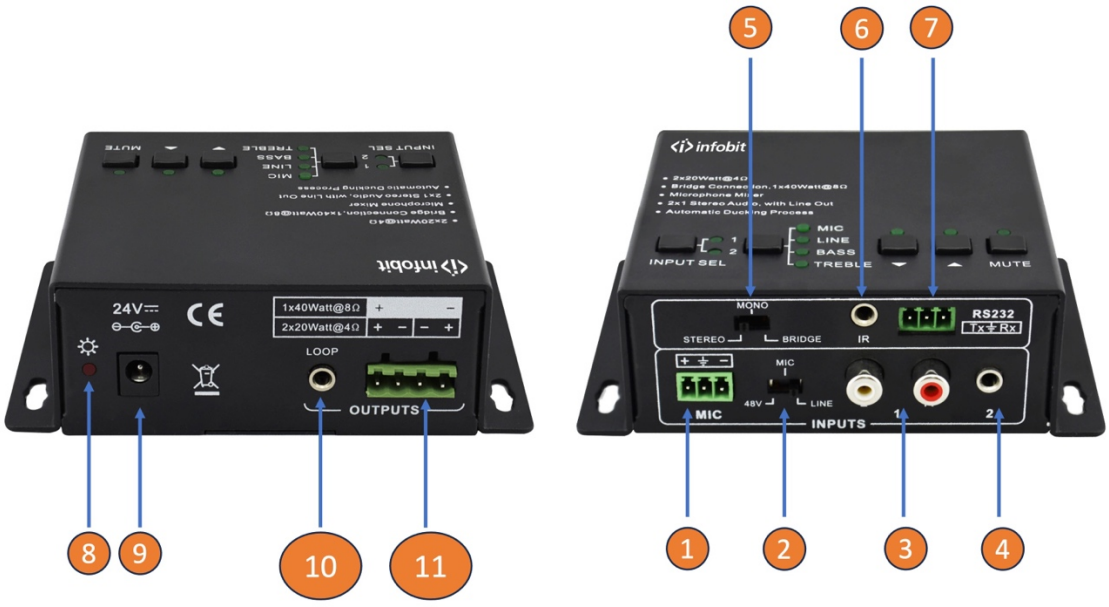
- 1x Mini Digital Amplifier
- 2x Pluggable Terminal Blocks
- 1x RS232 Cable
- 1 x Power Adapter
- 1x Power Cord
- 4x Plastic Cushions
- 1x User Manual

Note:

- The IR remote and its battery are offered for charge separately.
- The IR receiver is also offered for charge.
- Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

7. System Connection

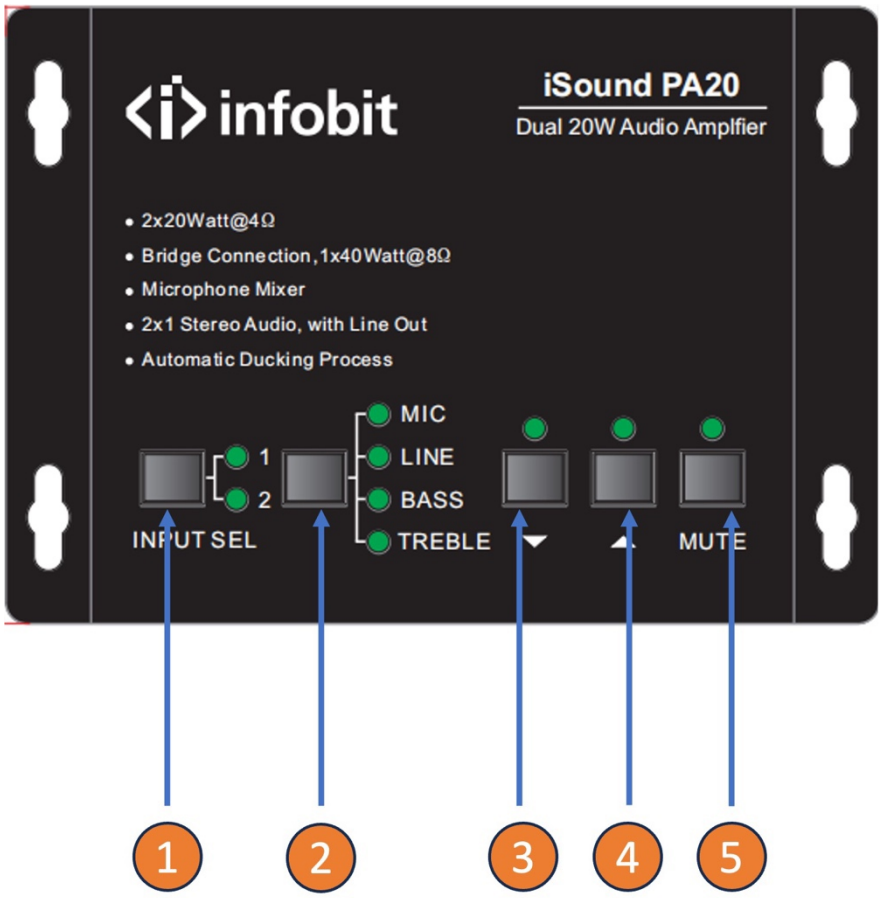
7.1 Front & Rear panel.



1- MIC input
2- DIP switch: to select MIC input modes
3- Stereo input: L (Left channel), R (Right channel).
4- 3.5mm stereo input
5- DIP switch: to select output modes.

6- IR receiver
7- RS232 control, 3-pin connector.
8- Power indicator
9- DC power input
10- 3.5mm Loop out port, used for cascading daisy chain.
11- Audio outputs

7.2 Top panel



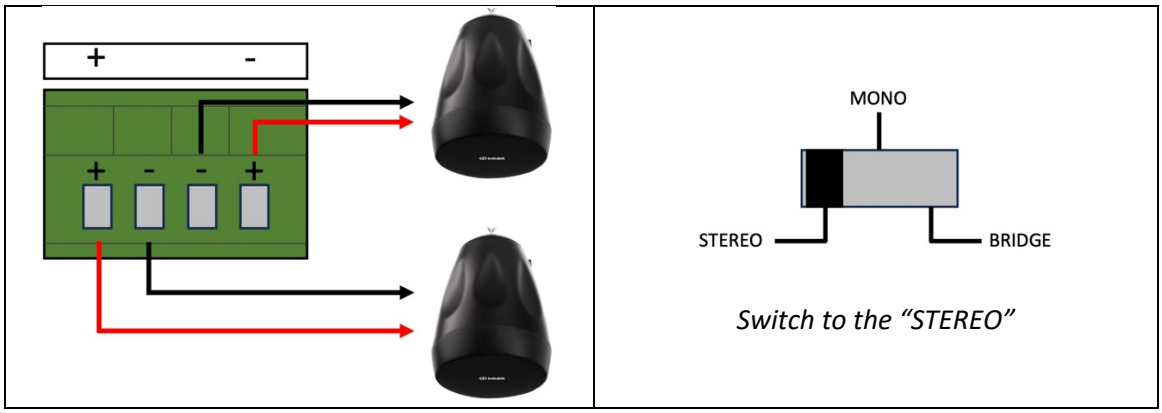
1- INPUT SEL: select input signals.
2- Audio types selection button.
3- Volume down
4- Volume up
5- MUTE: mute button

8. System Connection

8.1 Audio Output

8.1.1 Default Output: 2x20Watt@4Ohm

The default output of amplifier is 2x20Watt@4Ohm, so user can connect the amplifier output in the regular way. As the picture below:



8.1.2 Bridge Connection: 1x40Watt@8Ohm

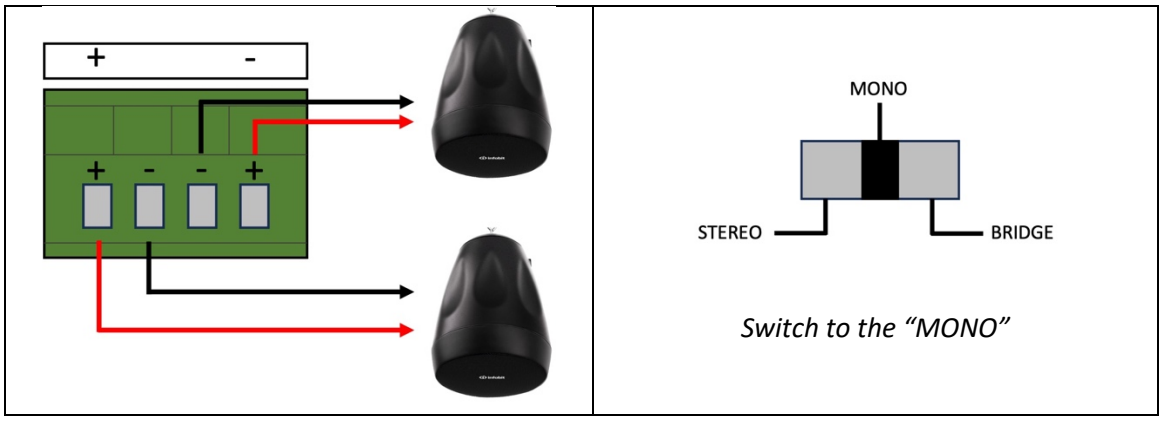
The Mini Digital Amplifier has the bridge connection, to double the output power at 1x40Watt@8Ohm. It will sum up the input left channel and input right channel to be mono output, and the power is up to 40Watt.

The bridge connection is:

8.1.3 Dual-mono Output

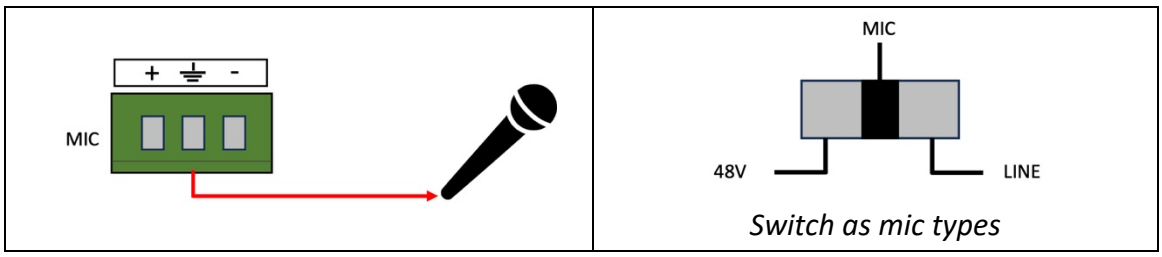
The Mini Digital Amplifier also has the function of double-mono output. It can sum up the left and right channel, to be the mono audio output. In this way, the both of the outputs are showing the same mono audio.

The connection is:



8.2 Microphone Input

The microphone input of Mini Digital Amplifier has three modes, and different modes use different connections, as the picture below:

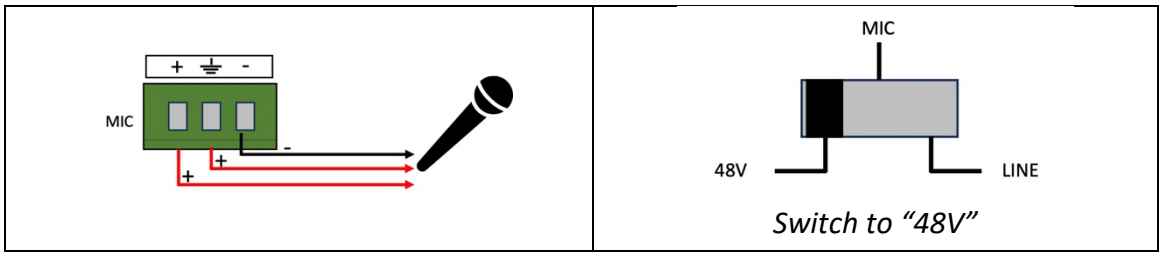


8.2.1 48V Phantom Power Input

When the switch turns to “48V”, the MIC input will provide a 48V phantom power. This is usually used for power supply for condenser microphone, Connection is:

“+” connects to positive, “-” connects to negative and “⏚” to ground.

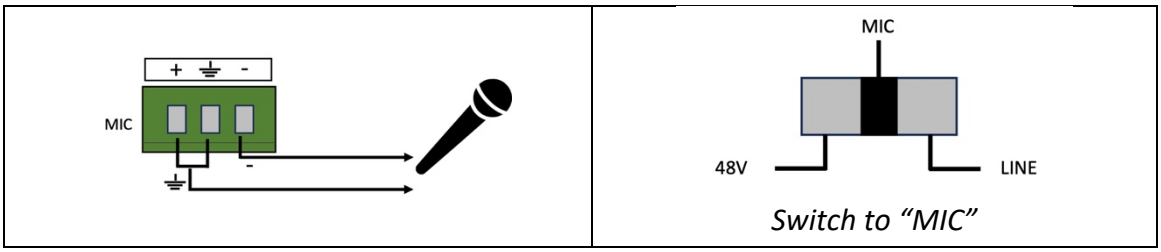
Note: In this mode, only condenser microphone can be connected with.

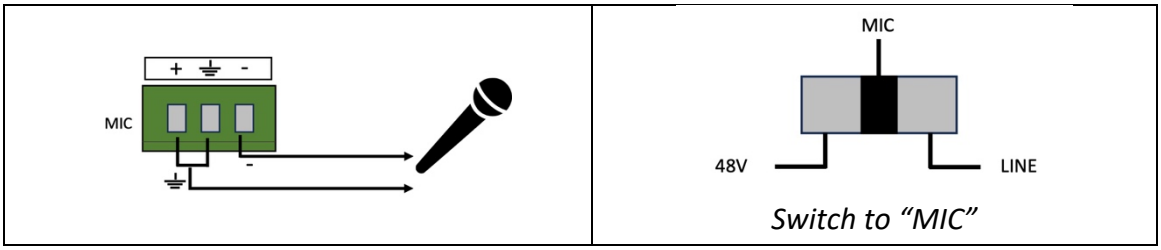


8.2.2 MIC Input

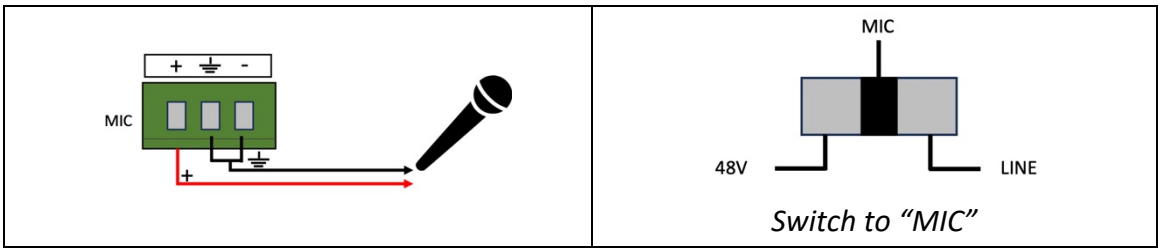
When the switch turns to “MIC”, the microphone input is used for connecting with dynamic microphone. There are two different connections:

1) Unbalanced connection:
“⏚” connects to ground, and “-” connects to signal.
“⏚” connects to ground, and “+” connects to signal.





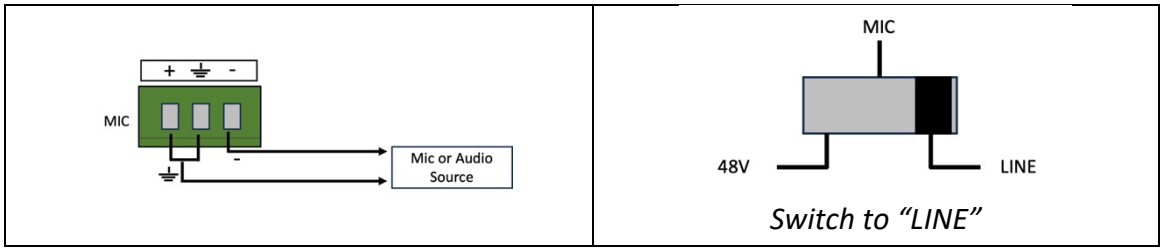
2) Balanced connection: “+” connects to positive, “-” connects to negative and “⏚” connects to ground.

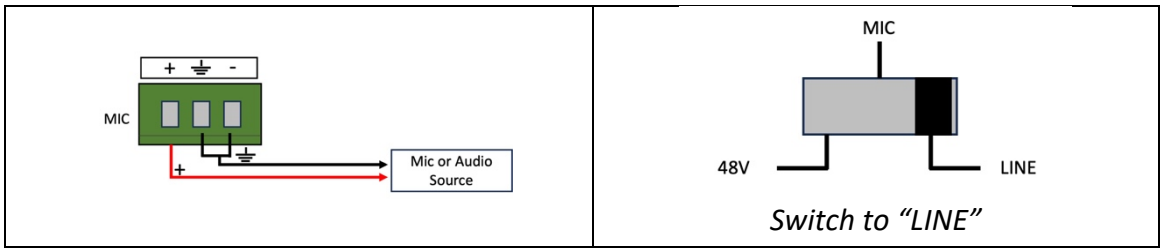


8.2.3 LINE Input

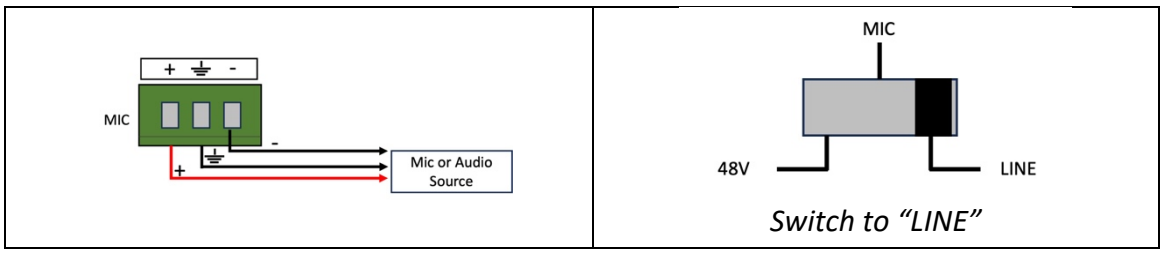
When the switch turns to “LINE”, the microphone input is used for connecting with normal audio or wireless microphone output. There are two different connections:

1) Unbalanced connection:
“⏚” connects to ground, and “-” connects to signal.
“⏚” connects to ground, and “+” connects to signal.





2) Balanced connection: “+” connects to positive, “-” connects to negative and “⏚” connects to ground.



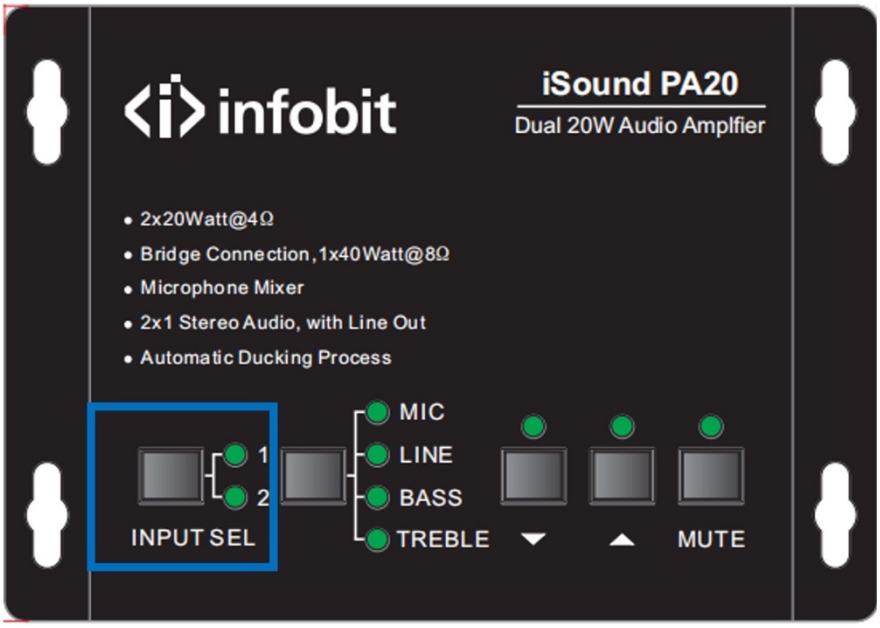
9. Panel Control

The buttons provide the control of volume/EQ control and switching. The following content introduces audio switching and EQ control in detail.

9.1 Audio Switching

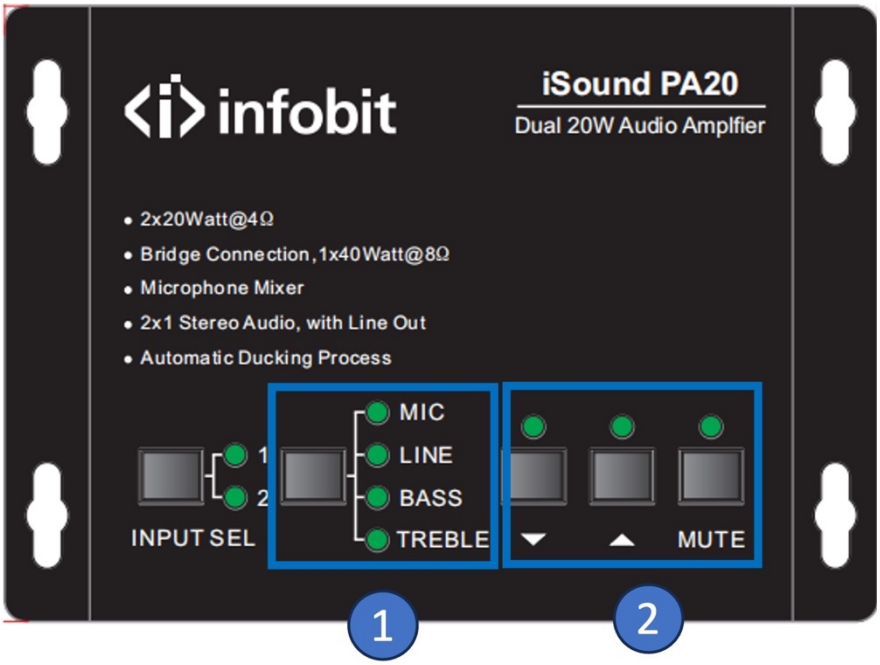
There are two switchable stereo audio inputs, one 2xRCA input, and one 3.5mm jack input, switchable through the buttons as below:

INPUT SEL 1: 2x RCA stereo input signal
INPUT SEL 2: 3.5mm Stereo input signal



9.2 Volume/EQ controlling.

The line volume and MIC volume can be controlled by the buttons.
The MIC Volume/LINE volume/LINE bass/LINE treble will be selected by the buttons, and controlled up/down/mute by the function buttons. Please check the picture below:



For example, to turn up the line volume, you should select the “LINE” first, and then press the button “▲”.

10. IR Remote Control

Audio Inputs

1: RCA dual-mono audio input.

2: 3.5mm jack.

Volume Control:

MIC: Volume up or down microphone audio.

LINE: Volume up or down line volume.

BASS: Bass tuning.

TREBLE: Treble of line audio.

Use to transmit the infrared signal send by the IR remote.

Mute Mode:

MIC: Mute microphone audio.

LINE: Mute line audio.

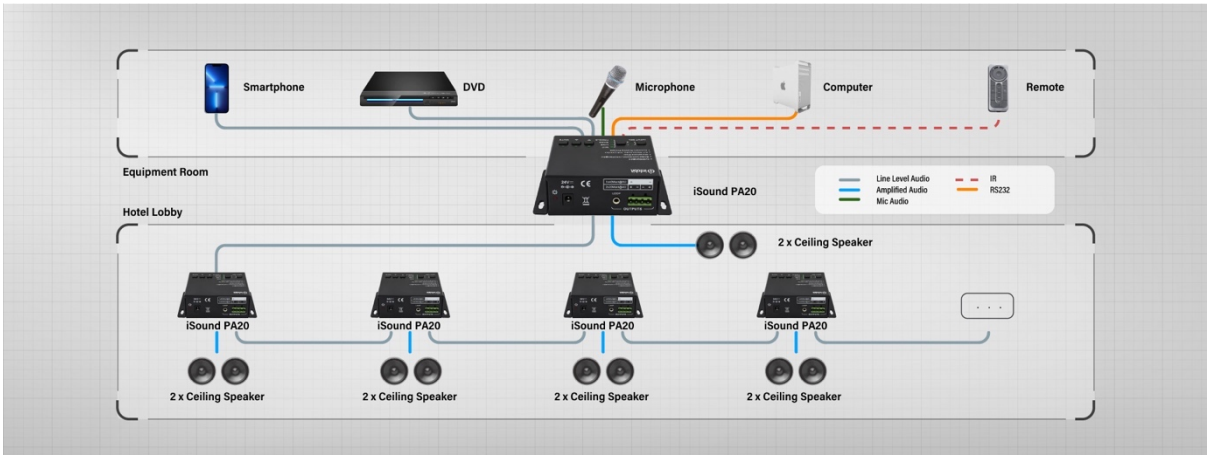
SPEAKER: Unmute.

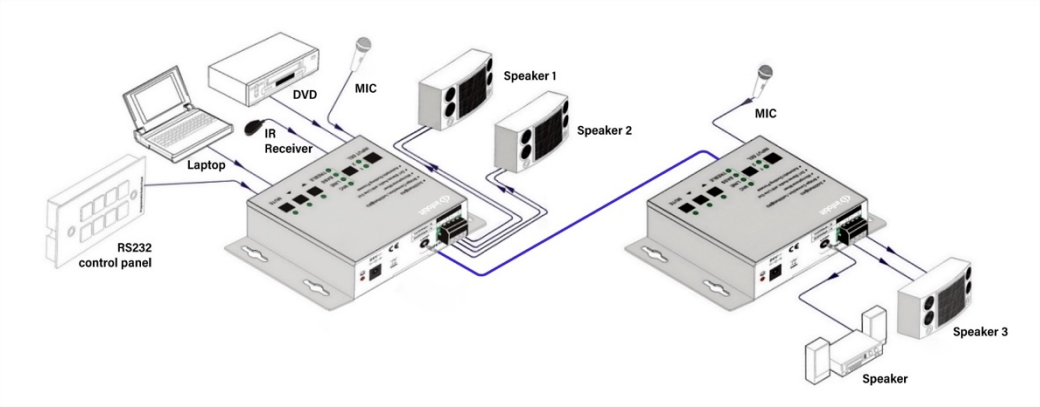
IR receiver head, works in conjunction with the IR remote. Please point the IR remote at the IR receiver when use, to avoid getting out of control as there is no signal detected.

3.5mm jack, insert it into the specialized socket (3.5mm) to connect the IR receiver with the amplifier

Note: The IR remote, the IR receiver, and the battery of the IR remote are all offered for charge.

11. System Diagram

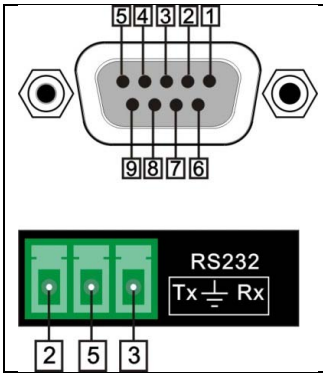




12. RS232 Command

After setting all needed input and output devices according to the system connection introduction, connect control PC to the RS232 port, and then install the RS232 control software (e.g. docklight) into the control PC to send RS232 command to control the product. After installing the RS232 control software, please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in command sending area.

The serial port settings for all RS232 commands is:
Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none



1		
2	Tx	Transmitter
3	Rx	Receiver
4		
5	GND	Ground
6		
7		
8		
9		

Command	Function Description	Feedback Code
1A1.	Switching the audio to input 1.	A: 1 -> 1
2A1.	Switching the audio to input 2.	A: 2 -> 1
0A0.	Mute Audio of MIC and Line out.	Mute
1A0.	Mute audio of MIC.	Mute MIC
2A0.	Mute audio of line out.	Mute LIN
0A1.	Unmute Audio.	Unmute
3A0.	Switch on Noise Gate.	Gate On
4A0.	Switch off Noise Gate.	Gate Off
600%	Checking the working status.	A: 1 -> 1 Volume: 30 Bass: 00 Treble: 00
601%	MIC volume up.	Volume of MIC: 51
602%	MIC volume down.	Volume of MIC: 51
603%	Line volume up.	Volume of LINE: 51
604%	Line volume down.	Volume of LINE: 51
605%	Bass level up.	Bass of LINE: 04
606%	Bass level down.	Bass of LINE: 04
607%	Treble level up.	Treble of LINE: 04
608%	Treble level down.	Treble of LINE: 04
609%	Initialization, back to the default setting.	Init OK
5[x][x]%	Preset MIC volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of MIC: 50
7[x][x]%	Preset line volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of LINE: 50
8[x][x]%	Preset the bass level, [xx] arranges from [00] to [08]. 9 degrees in total.	Bass of LINE: 04
9[x][x]%	Preset the treble level, [xx] arranges from [00] to [08]. 9 degrees in total.	Treble of LINE: 04

Note:
The letter inside bracket [ ] is the variable code, which is changeable.
The bracket [ ] is not included to the RS232 commands.
Any dot "." after the letters is part of the commands.

Example 1:
Switching the input 2 to the line out, RS232 command is: [2A1.].

Example 2:
Turning up the volume of line audio, RS232 command is: [603%].

Example 3:
Preset the MIC volume to "21" degree, RS232 command is: [521%].

Example 4:
Checking the working status of Mini Digital Amplifier, RS232 command is: [600%].

13. Specifications

Audio Input	
Input	(2) Stereo Audios, (1) MIC
Input Connector	(2) RCA, (1) 3.5mm Jack, (1) Pluggable Terminal Block (3P, 3.81mm)
Audio Output	
Output	(1) Amplifier, (1) Stereo Audio
Output Connector	(1) 3.5mm Jack, (1) Pluggable Terminal Block (4P, 5.08mm)
Audio Performance	
Input Impedance	>10kΩ
Output Impedance	50Ω Analog Output; 4/8Ω Speaker Output
Maximum Rated Power Output	2x20 watts (4 Ohms)
Frequency Response	20Hz ~ 20kHz
Common Mode Rejection Ratio (CMRR)	>70dB@20Hz~20kHz
Signal to Noise Ratio (SNR)	80dB (Max)
Total Harmonic Distortion + Noise (THD+N)	1% at 1kHz; 0.3% at 20kHz at Nominal Level
General	
Power Supply Input Voltage	100-240v AC at 50/60 Hz
Power Supply	24V DC at 2.71A
Maximum Power Consumption	45 watts
Operation Temperature	0℃ ~ +40℃
Storage Temperature	-10℃ ~ +60℃

Storage Humidity	10%-90%
Dimensions (W*H*D)	123mm x40mm x87mm
Net Weight	720g

14. Troubleshooting & Maintenance

1) When there is no output audio:

- Check if there is any signal at the input.
- Check if there is any signal at the output.

We can check these by using an oscilloscope or a multimeter. If there is no signal input/output, maybe the input/output cables broken or the connectors loosen, please change for another cable.

- Check if the output port number is the same with the controlled one.
- If not the problem mentioned above, probably there is something broken inside the unit, please send it to the dealer for repairing.

2) If the **POWER** indicator doesn't work or no respond to any operation, please make sure the power cord connection is good.

3) If the output sound is interfered, please make sure the system is grounded well.

4) If the static becomes stronger when connecting the audio connectors, it probably due to bad grounding, please check the grounding and make sure it connected well, otherwise it would damage the converter.

5) If the Mini Digital Amplifier amplifier cannot be controlled by the keys on the front panel, RS232 port or IR remote, the unit may have already been broken. Please send it to the dealer for repairing.

15. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty

The limited warranty period of the product is fixed three years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusion

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
  - ✓ Normal wear and tear.
  - ✓ Use of supplies or parts not meeting our specifications.
  - ✓ No certificate or invoice as the proof of warranty.

- ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
- ✓ Damage caused by force majeure.
- ✓ Servicing not authorized by distributor.
- ✓ Any other causes which does not relate to a product defect.

- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: Please contact your local distributor for further assistance or solutions.